

# Singleton Shire Healthy Environment Group

## “Response to IPC Rixs Creek Report Aug 2018”



*A community-based group looking to address Environmental issues affecting Singleton Shire residents*

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██████████  
Author: Dr Neville Hodkinson PhD

We seek identification as to what is making our Children and Community Sick so they can be mitigated by OH&S Compliance Orders.

### **SSHEG Focus on Health**

SSHEG is Not Anti Mining or Anti Power Stations

Independent Planning Commission NSW  
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## “Rixs Creek Continuation of Mining Project SSD 6300”


Clearly the Independent Planning Commission to be truly Independent needs Specialist Health & Coal Industry Pollution Disease Expertise in order to adjudicate, especially for “Near Neighbours to Open Cut Coal Mines – McDougalls Hill, Singleton Heights, Country Acres Caravan Park”.

Thus, SSHEG calls for a Culture Change to “*Minimise Mine Air Pollution Emissions at their every source*”, and referencing 15 Minute PM10 and PM2.5 Real Time Monitoring at specific Resident Localities for Mitigation.

The 28th August 2018 IPC Report for Rixs Creek Continuation 2015 demonstrates that NSW Health<sup>#</sup> is insisting upon “*Mitigation of impacts below traditional acquisition zones*“, while the mine to gain approval is simply trimming its Coal Mining Rate to fall below the already outdated Evaluation Modelling Guidelines and NEPM WHO 2005 based Standards.

SSHEG Community Healthy Living focuses upon Mine Pollution Disease Impacts on Residents - breath by breath; insisting that mines Mitigate Pollution by “*Minimising to World Health Organisation ongoing identified Guidelines*” over each 15 Minute period, of Cumulative Locality readings for PM10 and PM10-2.5 & PM2.5: **That is the Healthy Air we Breath criteria!**

Hunter New England Local Health District  
Hunter New England Population Health  
Direct Contact Details  
[REDACTED]

 Health  
Hunter New England  
Local Health District

#

29 June 2018

Ms Genevieve Seed  
Senior Planning Officer  
Resource Assessments | Planning Services  
NSW Department of Planning and Environment.  
320 Pitt Street | GPO Box 39 | Sydney NSW 2001

Dear Genevieve

Re: RIX'S CREEK COAL MINE CONTINUATION OF MINING PROJECT SSD 6300 - RESPONSE TO REVISED RESPONSE TO SUBMISSIONS

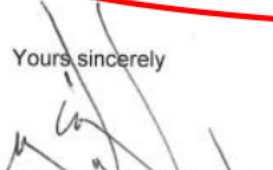
We understand that the Independent Planning Commission have sought further clarification as to whether NSW Health's concerns with regard to air quality have been addressed in the proponent's response to submissions and revised response to submissions.

Further review of Appendix H has revealed that the new NEPM air standard for annual average PM10 of 25  $\mu\text{g}/\text{m}^3$  is not predicted to be exceeded in the residential areas immediately north of Singleton are but at least one residence is predicted to reach 25  $\mu\text{g}/\text{m}^3$  and many other residences will be in the vicinity of the goal due to incremental emissions from Rix's Creek and existing air pollution from surrounding mines. Many private residences that are not in the acquisition zones within McDougall Hill and Singleton Heights will have significantly increased predicted daily PM10 impacts from the mine – many with an incremental average 24 hour PM10 impact of 20 to 30  $\mu\text{g}/\text{m}^3$  (Appendix H, Table 3). The cumulative impact at the Country Acres Caravan Park is predicted to exceed the NEPM average 24 hour PM10 goal of 50  $\mu\text{g}/\text{m}^3$  (Appendix H, Table 6, Figure 3 and 4 - noting that the tolerance of 5 days of exceedance of the goal per annum has been removed from the revised NEPM). There are also incremental impacts in mine owned residences and residences subject to acquisition.

While the EIS focuses on assessment criteria we note that there is no evidence of a threshold below which exposure to particulate matter (PM) is not associated with health effects. Therefore, it is important that all reasonable and feasible measures are taken to minimise human exposure to PM.

On review of the revised response to submissions we note that multiple residential areas will experience increased PM10 impacts. If the project is approved it will be important to consider the need for mitigation of impacts beyond traditional acquisition zones, the impact on residential expansion surrounding the mine and targeted interventions such as those promoted through the Dust Stop Program.

Yours sincerely

  
Professor David Durrheim

**Its Community Healthy Living versus Mining Employment Balance!!**

## The extent of the Disease Concern is outlined in SSHEG Submission of Dec 2015 and the Response to Mine Response to Submissions (RTS) by NSW Health and EPA as illustrated below:-

L, however, we note these were difficult to identify in this document. Figure E26 in Appendix L provides the most detailed cumulative annual average PM<sub>10</sub> predictions for the highest impact year of 2023 (below). The areas highlighted with orange lines indicate significant population areas predicted to lie between 20 and 30 µg/m<sup>3</sup> in Singleton Heights and McDougalls Hill and higher in Camberwell. This suggests the annual PM<sub>10</sub> emissions will exceed the current NEPM of 25 µg/m<sup>3</sup>. We acknowledge the response that health impacts are predominantly driven by PM<sub>2.5</sub> rather than PM<sub>10</sub> effects, however, there is emerging evidence that the long term exposure to the coarse fraction (PM<sub>2.5-10</sub>) can have respiratory impacts.

### NSW Health Response to RTS 8 Dec 2016

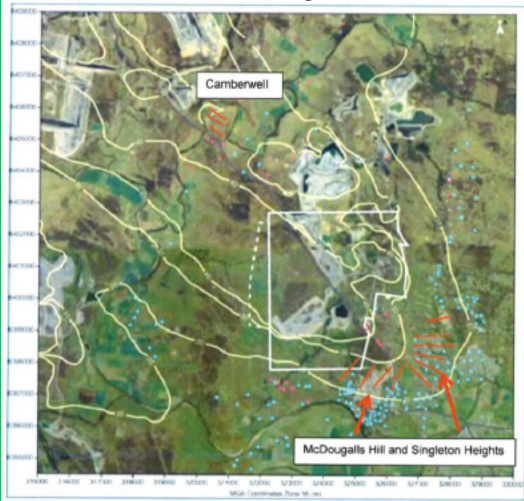


Figure E-26: Predicted annual average PM<sub>10</sub> concentrations due to emissions from the Project and other sources in 2023

### SSHEG Rixs Creek Mine Continuation Dec 2015

In the Short Term, the Upper Hunter Air Quality Monitoring Network has confirmed the Valley Air Pollution Streamline Flow Drifting behaviour of PM<sub>10</sub> and PM<sub>2.5</sub>. The WHO Disease significance now of Rixs Creek Mine Daily PM<sub>2.5</sub> Emissions is coupled with the South Easterly Valley Air Drifting Flow Patterns towards Singleton Residents is illustrated in Figure 1 below. This combination establishes the requirement for Rixs Creek Mine along with other Hunter Valley Mines to strategically locate “Concurrent PM<sub>10</sub>, 2.5 TEOM Type Monitors”, which are then expected to provide the basis for PM<sub>2.5</sub> Fine, PM<sub>2.5-10</sub> Coarse, and PM<sub>10</sub> Real Time Pollution Mitigation Controls to protect Residents.

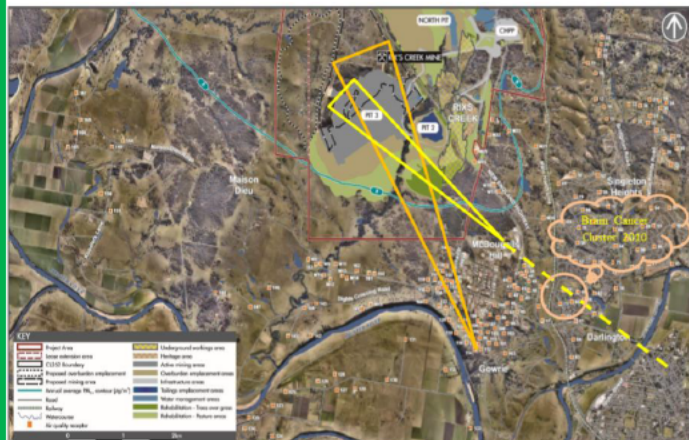


FIGURE 1 Illustration of Air Pollution Drifting Impact on Singleton Assessment Resident Groups

### EPA Response to RTS Report 15 Nov 2016 ATTACHMENT A: Environment Protection Authority's Air Quality Assessment Review RTS

The Environment Protection Authority (EPA) has undertaken a review of the Response to Submissions (RTS) report titled “Rixs Creek Mine – Continuation of mining project Environmental Impact Statement Response to Submissions”, dated 20 October 2016, in relation to the Rixs Creek Coal Mine Extension Project, SSD 8300. The EPA has also reviewed the documents titled “Air quality and greenhouse gas assessment, Rixs Creek continuation of mining project” by Todoroski dated 26 August 2015 (Todoroski 2015) and the Environmental Impact Statement dated 28 October 2015. The EPA provides the following comments in relation to air quality matters.

#### Estimated Impacts from the proposal

The assessment predicts exceedances of the air quality impact assessment criteria at non-mine receptors as summarised in the table below, taken from Todoroski 2015.

#### Impacts greater than criteria – non-mine receptors

Receptor ID	24-hr					Annual			
	PM <sub>10</sub>					PM <sub>10</sub>	PM <sub>2.5</sub>	TSP	Dust deposition
	50	cumulative # extra days				30	8	90	4
crit	year max	2017	2020	2023	2026	year max	year max	year max	year max
1	2020 71	2	21	32	4	2020 34			
	2023 77					2023 36			
19		1	1	3	1				
61		2	5	5	4				
140		3	2	4	1				
161		1	1	2	1				
163		3	3	1					
164		1	1	1	1				
170						2017 78	2017 14		2020 5.3
						2020 100	2020 16		2023 6.4
						2023 103	2023 17		2026 6.4
						2026 99	2026 16		2029 5.3
171						2023 36			
						2017 41	2017 9		
						2020 47	2020 10	2020 101	
172						2023 46	2023 10	2023 99	
						2026 43	2026 9	2026 95	
						2017 43	2017 9	2017 92	
						2020 39	2020 9		
173						2023 39	2023 9		
						2026 34			
						2017 37	2017 9		
						2020 37	2020 9		
174						2023 36			
						2026 33			
						2017 35	2017 9		
						2020 36	2020 9		
175						2023 36			
						2026 39			
						2017 38	2017 9		
						2020 39	2020 9		
176						2023 38	2023 9		
						2026 36			

Rixs Creek planned 40yr Mine Life approval in 1995 included Air Quality Assessments for 22<sup>nd</sup> year 2018, only for Annual Average Dust Deposition & Dust Concentration levels; with 24 Hour TSP (<50um) HVAS sampling at Singleton Heights, Retreat and East of the Mine. Most common winds were WNW-SE or SSE, as now illustrated. **More Residents now live SE of Mine Pollution Plumes.** Mine Polluted Air Drifting SE Patterns impact Singleton Heights; as does the Diesel Exhausts of the New England Hwy & Coal Trains, & Power Stn Fly Ash Plume drifts.

### RIX'S CREEK MINE COMMUNITY CONSULTATIVE COMMITTEE MEETING MINUTES –27/05/2014

Rehabilitation has been designed to shield the operation from nearest residences / townships and to move away aligned to production rates.



Red = 1989 Population area. Green = 2013 Population area.

Singleton Heights is of particular Community Health concern having previous Disease form following on from the Brain Cancer Cluster Study in 2010 in this area; located then just to the East of Rixs Creek Open Cut Mine and on the Eastern downhill slope depression which is conducive to “*Ground Impacting SE Air Drifting Pollution Patterns*” moving from the Upper Valley Composite Air Pollution with its Power Station Fly Ash and accumulated secondary aerosols Air. This descending SE Drifting Air Pollution Cocktail leaving the Rixs Creek Mine further adds the Diesel Exhausts of Trucks climbing the Hill of the New England Hwy and further adds the Coal Trains Diesel and Track Pollution (Residents Homes that back onto the Railway line). This Cumulative SE Drifting Air Pollution “Descending into the Singleton Heights Homes would be expected to take the line of least resistance – in this case apparently following the SE directional road pathways thus concentrating the Air Pollution Jetstream passing Homes at street corners – such as was inferred in Singleton Heights Cancer Cluster Study [Method 1](#) evaluation related to “*The cluster was reported in two intersecting streets*”- Statistical assessment of the chance of occurrence of geographic clustering.

It is the SE – NW Road orientation sloping further downhill that can concentrate the SE flowing of Air Drifting Pollution providing the Topography passage at “*Intersecting Streets*” compared to the obstacle to free flowing that Homes exhibit. Somehow what the Community reported as a Statistically significant Cancer Cluster was turned into a study of Street corners Statistically, whereas the Community was reporting the observed Air Pollution SE Drifting Flow over this area of the Singleton Heights.

SSHEG considers [Method 2](#) employs the “Statistical Averaging” disguise of hiding the “*Data Intelligence*”. Firstly, the Community had separately identified the “*Specific Environmental Hazard*” at Singleton Heights as the locality closest to the Railway line, Highway and the proximity to Rixs Creek Mine. Secondly, the Poisson Statistical Analysis should have been restricted to the entire area of Singleton Heights at the time, not to distort the study by including the distant area of Singleton Township.

Recognising the difficulty in confirming Cancer Clusters and since the 1995 Rixs Creek Mine Approval Air Quality is now heeded, it still remains that **Singleton Heights Air Pollution Disease Risk is a Community Red Flag.**

Serious questions were posed to EPA in the SSHEG Submission of 20 Jan 2017 on “Clean Air NSW Consultation 2017”; extract below:-

Without prejudice

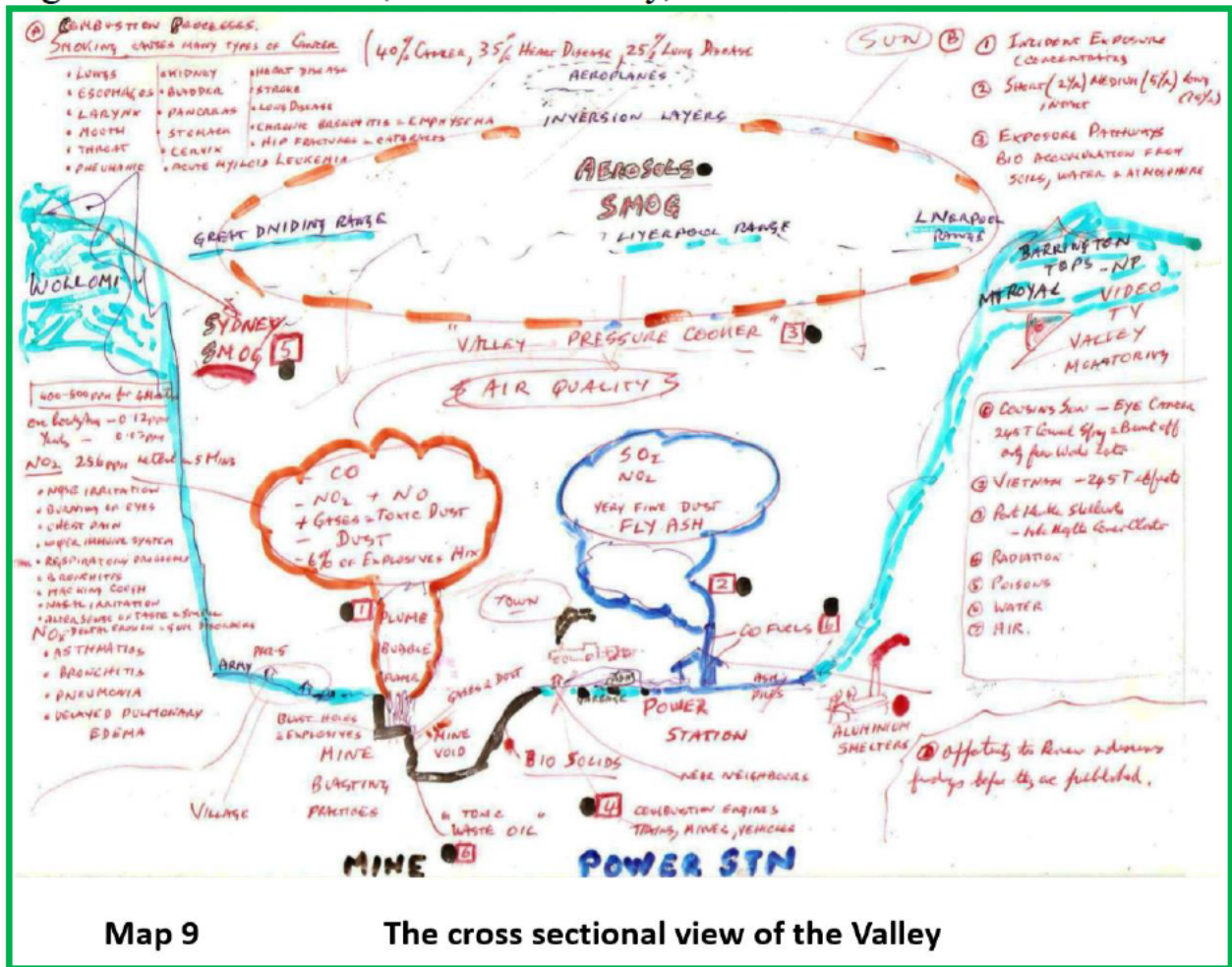
**Part B** Why has NSW Health and NSW EPA been unable to utilise the Minimisation provision of Government Air Pollution Acts, and what guidelines could be used to facilitate their use to “Clean Air in the Hunter Valley” ?

Firstly a lead by NSW Health and NSW Environmental Health is needed to set Compliance standards for “Hunter Valley Open Cut Coal Mines Precincts” separate to other Jurisdictions and based on three factors not catered for by existing National Standards. Developments in better targeted Short Term Air Pollution Disease associations Research and progressive World Health initiatives since 2014 provide an ongoing basis for these changes.

- I. Mines without Buffer Zones with Residents forced to Coexist beside Open Cut Black Coal Mines.
- II. Resident Disease Impact criteria from PM2.5 and PM1.0 (Mine Diesel use), Black Carbon Air Pollution.
- III. Demography of “Near Neighbour Residents in terms of Air Pollution Disease Susceptibility. Eg Schools, Elderly, etc
- IV. Disease latency from repeated 15 Minute Air Pollution Exposure spikes related to concentrated Mine Pollution Air Drifting patterns in addition to the local Environs Cumulative Air Pollution levels at the time.
- V. Quantitative Analysis to Exposure the fallacy that Indoor Air Quality is not related to Outdoor Air Pollution levels, thus how should farmers be protected ?

Serious questions are now being posed here to The Independent Planning Commission to provide true “Independent Air Quality and Community Health Guidance” to further substantiate the NSW Health’s reaffirmation of the “No Threshold of Airborne Particles that is Safe”, and the responsibility to enshrine in any Mine Approval Consents and Operations that “At all times Mine Operations are to Minimise Air Pollution release to Atmosphere at each Pollution generating Source”.

SSHEG in its 10 Year review is turning back the clock to the detailing that was supplied to NSW Health Expert Advisory Panel on Community Disease from poor Air Quality and the Cocktail of Airborne Pollution in the Singleton Shire in 2010; still valid today, and illustrated below:-



Since 2007, SSHEG members active in Mine and Power Station Community Consultative Committees along with Mine Management were being advised by eminent Medical Specialists that “No convincing evidence of mining impact on Community Health”; impact on Health of Mine Dust”.

Independently the World Health Organisation Scientific Advisory Committee and Expert Reviewers on Air Quality in October 2013 declared “*There is a linear Dose-Response Relationship between Particle Levels and Human Disease with No Threshold that is Safe*”; having previously in June 2012 declared “*Diesel Engine Fumes can cause Lung Cancer and belong in the same potentially deadly category as asbestos, arsenic and mustard gas*”.

Together, whether its Air Pollution from Mining or living close by to Exhausts and other Pollution Emissions of Highways or Railways, or a Cocktail of both; it’s the Air Pollution Drifting Pattern of these Emissions at Ground level that determines the Expose Risk they pose to Human Health, short and long term.

In the Hunter Valley the “*Corridors of Mine Air Pollution*” are observed to generally Drift across the Valley floor on the WNW-SE and SSE Corridors, as well as into Microvalleys pockets adjoining the Escapements.

The 1995 Rixs Creek Mine Consent apparently recognised these impacts by limiting Mine operation when Air Drifting Wind Velocity was adjudged at the time to impact Camberwell, Maison Dieu and Singleton Heights. **Perhaps this continues today!**

AIR QUALITY	DUST SUPPRESSION
<p>23. (i) The Applicant shall cease all mining operations at any time when the average hourly wind velocity from any direction exceeds 10 m/s.</p> <p>(ii) The Applicant shall cease all out-of-pit overburden dumping and shaping, topsoil stripping and emplacement and bund wall and earthworks construction at any time when the average hourly wind velocity exceeds 5.6 m/s from the segment due west clockwise through to the northeast.</p> <p>(iii) The Applicant shall cease all mining operations at any time when visibility is impaired on the New England Highway as a result of mining operations in accordance with the requirements of the Council.</p>	<p>24. (i) The Applicant shall provide a standby water cart for each operating water cart proposed in the EIS at each stage of mining.</p> <p>(ii) the Applicant shall install automatic water sprays on the coal stockpiles such that the stockpiles are sprayed when the wind speed from any direction exceeds 5.6 m/s.</p> <p>Automatic water sprays have been installed on coal stockpiles in compliance with this condition. Refer to Section 3.8. As part of the future operations it is proposed that adequate road watering equipment will be available for the scale of the operation.</p>
<p>F1117A.H:lcw, November 1994</p>	<p>ENVIRONMENTAL OFFICER</p> <p>25. Prior to the commencement of any construction or operations in the coal lease application area the Applicant shall appoint an on-site environmental officer responsible directly to the mine manager whose qualifications are to the satisfaction of the Department.</p> <p>F1127/LH:lcw, November 1994</p>

Today, SSHEG calls for a Culture Change to “*Minimise Mine Air Pollution Emissions at their every source*”. Our comprehensive 10 years Air Quality Health investigations Outlined below are worthy of further consideration by all as a way forward.

## Outline of SSHEG Focus on Health

“SSHEG contend that all Major Projects, especially Mining and Power Station Operations, both Existing and Proposed should be subject to **Cumulative Health Impact Studies and Health Risk Assessments** in order to restore the balance between Employment and Financial Revenue on one hand, and Community Health on the other hand”. Don’t ignore **WHO Air Pollution carcinogen announcements** in Oct 2013.

It is clear that **new Health Research Methods need to be developed** to provide perhaps a Real Time Technological based **Health Study approach** which will overcome the current Medical Impasse where Epidemiology Cohort studies for **small Community Localities** are statistically excluded from Health Studies.

In the meantime the Coal Mining juggernaut rolls on unchecked, creating unbearable “**Dust, Fumes, Plumes, Fly Ash, Combustion Gases, Diesel Exhaust Pollution, Incessant Mine Noise** and Trains rattling through beside Houses, Ground Vibrations, Glaring lights, Sleep disturbances, Psychological Pressure, Irrigation Creek Water unfit for cropping, squeezing out Near Neighbours and Villages, encircling Villages and “**plundered Communities and Prime Agricultural Land**”.

It should be noted \*\* that Individual Open Cut Coal Mines across the Hunter Valley from 2006 onwards provided 24Hr continuous Particulate Matter PM10 Realtime Monitors at around **76 locations** (2013 SSHEG Senate Attachment S15). These **Monitors are mostly under utilised for reducing Dust and Pollution Emissions**, being tagged as “**Realtime PM10 Monitors**” but reported as **24 Hour Average PM10 Monitors**”.

The insistence by “**Environmental Authorities**” to allowed the farcical situation of “**Data Averaging**” to flourish and distort the Pollution Emission reporting by Operating Industries in NSW; while at the same time equating this to **Resident’s Minute to Minute Pollution Exposures** to Gases, Dust, Fumes and Vapours and the Hunter Valley Brown Haze Aerosols build up during the Day, and with Industry impunity.

A strong argument therefore exists to base PM measurements on 15 Minute Averages to bring “**Near Neighbours who are Occupationally Exposed Persons to Mining**” onto the same footing as Underground Miners exposed to Air Quality similar to that being experienced from time to time by farming families above ground nearby.

SSHEG were of the opinion in Oct 2011 that an **Holistic Technical Investigation using Particulate Real Time Monitors (PM10, PM2.5 & PM1) and the collection of Airborne Particulates on special Filter Media** from these monitor sampling streams was needed to determine what substances were in the Air.

Our Atmosphere is a mixture of Air constituent Gases - O<sub>2</sub> - N<sub>2</sub> - Ar - water vapour - trace gases; Pollutants - Gases, Ozone, Dioxin - Vapours - liquid droplets - Composite Particulates - Fly Ash, VOC’s - aerosols, Pollens, Spores, Fungi, and other Biological materials and Organisms.

The Time of Day Measurement variations of each component part of the Air is the mixture the Community breaths, and it is not unreasonable to expect the above constituent Measurements would form the level of detail knowledge needed to establish a definitive Air Composition and Speciation Analysis, from which the Health Risk considerations may be evaluated, leading to **better targeted Pollution Mitigation Controls to safeguard the Health of the Community**.

**The Health Risk is Real**, as all it takes is a repeat like the 1948 Donora Pennsylvania five day stable layer of Valley Air where on day three 17 (1 in 1000) people died; overall 40% Health affected, 800 animals died with 15% dogs dying.



In 2008 two Singleton Medical Doctors were reporting to NSW Health that Open Cut mining and Coal fired Power Stations were Polluting the Hunter Valley Air to the extent that Residents and especially Children experienced Medical episodes the likes of which were previously unheard of, and medications were struggling to counter these Disease impacts. Especially, Mine Blasting drifting Plumes were responsible for Orange skies, single breath Respiratory Attacks, Hospitalisation etc. now only treated as Fume EPA Non-Compliances.

As early as 2005, both Mining Companies and the Community were being advised by eminent Health Authorities “*No convincing evidence of mining impact on Community Health*”.

Since then, the World Health Organisation in June 2012 declared “*Diesel Engine Fumes can cause Lung Cancer*” related to the composition and attachment of Toxic substances to Carbon Particulates, especially PM2.5 and PM1.0; and in October 2013 declared “*There is a linear Dose-Response Relationship between Particle Levels and Human Disease with No Threshold that is Safe*”; again, identifying PM2.5 (Fine) and PM10-2.5 (Coarse) Disease Relationships.

It is therefore surprising that NSW EPA and OEH have not so far acted to incorporate these Mining related Pollution Human Disease PM2.5 Mitigation Controls; and in the case of Rixs Creek allowed the exclusion of the PM2.5 evaluation for the 2014 Continuation, while allowing what amounts to a fresh Project by altering the mine Plan in the years 2021 – 2025 Mine extraction Rate to apparently sneak under the somewhat lax Air Pollution Modelling limits.

It is no wonder that NSW Health would not water down its objections to the guidelines to Mine Approvals, rightly reminding the Independent Planning Commissioners, as is also the SSHEG opinion, that lower Mine Pollution over, and well below the “Industry Status Quo” are now overdue. **That is “*Minimisation of Mine Pollution At all times*”.**

**What then is the basis for the Serious Questions being posed by NSW Health on Mine Planning for the reduced levels of Mine Pollution below 2005 World Health Organisation Declarations, and for Mining to heed the need for Australian 2015 NEPM Standards?**

It’s no longer a matter of Australian NEPM “Guidelines” being exceeded in the Hunter Valley on a daily basis, but the Community demanding recognition that “There is No Safe Threshold Air Pollution”.

SEPTEMBER 5 2018 - 11:00AM NEWCASTLE HERALD

**Doctors invite NSW Government ministers for a coalfields stay to experience air pollution first-hand**

**Joanne McCarthy**

- HUNTER doctors have taken the unprecedented step of inviting government ministers to stay overnight near Upper Hunter coal fields and experience the “crisis” in air quality first-hand because “we’re not sure people outside the region understand how bad the situation is”.
- More than 30 doctors have sounded the alarm after a spate of recent air quality alerts in the Upper Hunter, including five straight days of poor air quality in August, even before an expected extreme drought-linked hot, dry and windy summer ahead.
- They have signed a letter inviting Environment Minister Gabrielle Upton and Health Minister Brad Hazzard to the coal region before summer after a [dramatic spike in Singleton Hospital](#) emergency department admissions in 2017 coinciding with hot, dry conditions and declining air quality.
- In the letter to Ms Upton and Mr Hazzard the doctors, including pediatrician and University of Newcastle Associate Professor John Boulton, described worsening air quality as a “crisis... that is causing serious health damage”.
- “This pollution is harming people. It is difficult for people outside the region to understand the effect this pollution is having on people in the Hunter. We ask you both to come for a one or two day trip to the region to meet affected communities and health professionals to discuss this crisis,” the doctors wrote in the letter which was supported by more than 70 community and environment group members.....etc
- The Upper Hunter also experienced increased toxic air pollutants from Bayswater and Liddell coal-fired power stations, doctors said.
- Doctors are concerned that modelling commissioned by the EPA showed that annual average fine particle air quality standards were “unlikely to be attained in Singleton and Muswellbrook into the future as coal production in the Hunter Valley is expected to continue to increase”.
- The modelling found human-made sources of fine particle pollution needed to be reduced by 50 per cent to meet the standard.
- Singleton doctors Tuan Au and Robert Vickers said the region needed stronger action from the NSW Government to protect public health.
- “When there are spikes in coarse particle pollution there is a decline in the health of local residents, particularly those with asthma, heart and lung disease,” Dr Vickers said.
- “The number of spikes we have seen recently shows the government is not holding up its responsibility to maintain air pollution standards and our population is the one suffering.”

Health Authorities and Governments around the World, including the NSW Government have been struggling with the Oct 2013 WHO declarations after 40 years of Medical Research on Air Pollution and Human Diseases associations; **A paradigm shift in Air Pollution Knowledge** now demand changes to protect Community Health.

Within two years in Feb 2016 the National Environmental Protection (Ambient Air Quality) Measure NEPM took effect, this new Air Pollution Knowledge impact on Open Cut Coal Mining and Coal fired

Power Stations now sees Communities demanding action to reduce Short term Mine Pollution, while NSW Health are also insisting upon changes that amount to tighter EPA restriction on Airborne Mine Pollution at all times.

Now after five years delay, and the last three years delay by NSW EPA since Feb 2016 “to introduce the amended NEPM criteria”, this now leaves Community Health Protection in the hands of National Legislation to address the new WHO Air Pollution Knowledge impact of Open Cut Coal Mining and Coal fired Power Stations, while NSW Health continues to remind Mining of the Disease Risk situation of all Mines.

<b>Air Quality</b>			NSW Health Agency submission 22 Sept 2016
There is no evidence of a threshold below which exposure to particulate matter (PM) is not associated with health effects. Therefore, it is important that all reasonable and feasible measures are taken to minimise human exposure to PM, even where assessment criteria are met.			
On 15 December 2015, the National Environment Protection Council (NEPC) agreed to vary the National Environment Protection (Ambient Air Quality) Measure (NEPM). The amending instrument took effect on 4 February 2016. The new standards are as follows:			
Pollutant	Averaging Period	Maximum concentration standard	Maximum allowable exceedances
Particles as PM <sub>10</sub>	1 day	50 µg/m <sup>3</sup>	None
	1 year	25 µg/m <sup>3</sup>	None
Particles as PM <sub>2.5</sub>	1 day	25 µg/m <sup>3</sup>	None
	1 year	8 µg/m <sup>3</sup>	None

Reference: <https://www.legislation.gov.au/Details/F2016C00215>

The EIS explains that, at the time of preparation of the report, the Environment Protection Authority (EPA) had not yet prescribed changes to the air quality criteria for NSW following the amendment to the NEPM. However, it would be expected that the EPA will introduce the amended criteria within the foreseeable future, and the EIS should have taken this into account.

SSHEG remain of the opinion expressed in Oct 2011 after discussions with the “NSW Health Expert Advisory Panel” that Holistic Technical Investigation based upon Particulate Real Time Monitors with 5-15 Minute readings of PM10, PM2.5 & PM1.0, in combination with the collection of Airborne Particulates on Special Filter Media from these monitor Sampling Streams was needed to determine what substances, what variations and what levels of Pollutants are in the air Residents breath at any one time.

Based upon these detailed Particulate Monitoring Studies the Health consequences of these Airborne Pollutants could then be evaluated.

The reality is the NSW Chief Health Officer and Expert Advisory Committee abruptly ceases investigations in the Upper Hunter Valley in Oct 2013, which soon coincided with the abandonment of the “Interagency Taskforce on Air Quality in the Hunter Valley” set up in 2014.

### **Interagency Taskforce on Air Quality in NSW**

As a key regulator of air pollution, the EPA established the high-level Interagency Taskforce on Air Quality in NSW in 2016 to address significant air quality issues across NSW.

#### **The taskforce**

provides input to and advice on air quality management through cross-agency collaboration and support prioritises strategies to reduce exposure to particulate matter, which has major impacts on human health develops cross-government recommendations and actions to meet national air quality standards coordinates communication of government actions to manage significant air quality issues in NSW

#### **The taskforce includes representatives from**

NSW EPA

Office of Environment and Heritage

NSW Health

Department of Planning and Environment

NSW Department of Industry - Division of Resources and Energy

Transport for NSW

Department of Premier and Cabinet

The Taskforce replaces the Interagency Taskforce on Air Quality in the Hunter, by expanding the remit of the previous taskforce to consider significant air quality issues across NSW.

Is it that Residents Health in the Upper Hunter Valley has been left in the hands of the debating club of the “Interagency Taskforce on Air Quality in NSW”, with NSW Health, NSW EPA sidelined in the decision making process????

Clearly the Upper Hunter area of NSW is treated as a separate Environmental Entity for the Mining Industry while the rest of NSW is reported against outdated 2012 Standards and Disease Risk Guidelines.

*Thanking you in anticipation of your considered response.*

Dr Neville Hodkinson PhD

**Singleton Shire Healthy Environment Group**

SSHEG Rixs Creek Mine Continuation Dec 2015

Without Prejudice

**S**ingleton **S**hire **H**ealthy **E**nvironment **G**roup  
“Rixs Creek Mine Continuation Dec 2015”



*A community-based group looking to address Environmental issues affecting Singleton Shire residents*

Author: Dr Neville Hodkinson PhD

We seek identification as to what is making our Children and Community Sick so they can be mitigated by OH&S Compliance Orders.

**SSHEG Focus on Health**

SSHEG is Not Anti Mining or Anti Power Stations

**RIXS CREEK Continuation 2015**

**SSHEG Submission of concern regarding the Rixs Creek Mine Continuation of Mining Project 2015-2037**

**Mining Pollution Health Impact**

This SSHEG Submission outlines the Singleton Shire Health Concerns focusing upon

*“The Reduction of the Health Impact on Residents Exposed to Air and Noise Pollution from Mining Operations, being Near Neighbours as Occupationally Exposed Persons under Federal and State Legislation”;*

SSHEG calls for a Culture Change

*“Minimisation NOT Time Averaging to Hide Air and Noise Pollution”*

In view of the WHO Air and Noise Pollution Human Disease findings, SSHEG expects it's only a matter of time before a **“Mining Industry Culture Change towards Minimising Air and Noise Pollution”** occurs; moving away from the Industry Attitude; **“We operate within our limits”**.

**Time Averaging currently allows Mines to “Control Operations so as not to exceed their Target Daily PM10 Limits” covering periods of some Hours well above even outdated NEPM standard PM10 Rates, for Example.**

Dr Neville Hodkinson PhD

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## SSHEG Rixs Creek Mine Continuation Dec 2015

SSHEG concern for the Rixs Creek Mining Continuation Project is based on the need to restore a better balance of the “Health Risk for Residents” to compensate for the removal of the long standing practice of “Mine Buffer Zones” effectively separating Residents and Industrial Pollution; this approach establishes that “Near Neighbours, Farmers and Farmers Families and Villages and especially Children” are presently bearing the brunt of Mine Pollution on account of their proximity to Mines as illustrated below. Increased Production rates only amplify the Residents Concern.



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SENSITIVE RECEIVERS - SOUTH  
Rixs Creek Continuation of Mining  
Environmental Impact Statement

FIGURE 12-2

“Near Neighbour Singleton Shire Residents” experience a range of “15 Minute STEL Pollution Exposures” Air Pollution Exposures which are now associated with “Lung Cancer, Cardiovascular Diseases and Respiratory Diseases, Bladder Cancer, etc.

Significantly, WHO has refocused attention on Short Term (Minute and Latency Days) Particulate Matter as PM2.5 ( Fine) and PM 2.5 -10 (Coarse) association with a range of Human Diseases, while Quantifying Long Term ( Annual Average) PM10 Air Pollution Exposure Population Disease Impact.

Better targeted Future Community Health Surveys now muted in 2015 to repeat 2008 SSHEG Community Health Surveys are expected to better quantify impacts for Short (multiple 15 Minute Pollution Exposures), Medium ( Daily Average Exposure) and Long Term (seasonal Exposure - 3 Months); compared to the current Epidemiology Cohort based Annual Average Pollution Exposure and NEPM Standard reference base.

**In the Medium Term, SSHEG therefore in making this submission, considers that additional “Concurrent Real Time Air Pollution Monitoring” is long overdue (TSP, PM10, PM2.5 and PM1) with Gases and Particulates Matter Sampling for Microscopy and Chemical Analysis including Gases {Ozone, CO, CO<sub>2</sub>, SO<sub>x</sub>, NO<sub>x</sub>, CH<sub>4</sub>, formaldehyde, and VOC’s) located for example at Receptor 138 or selected from Resident’s Complaints History for Assessment Groups J, G & H in Figure 12.2 above.**

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In the Short Term, the Upper Hunter Air Quality Monitoring Network has confirmed the Valley Air Pollution Streamline Flow Drifting behaviour of PM10 and PM2.5. The WHO Disease significance now of Rixs Creek Mine Daily PM2.5 Emissions is coupled with the South Easterly Valley Air Drifting Flow Patterns towards Singleton Residents is illustrated in Figure 1 below. This combination establishes the requirement for Rixs Creek Mine along with other Hunter Valley Mines to strategically locate “Concurrent PM10, 2.5 TEOM Type Monitors”, which are then expected to provide the basis for PM2.5 Fine, PM2.5-10 Coarse, and PM10 Real Time Pollution Mitigation Controls to protect Residents.

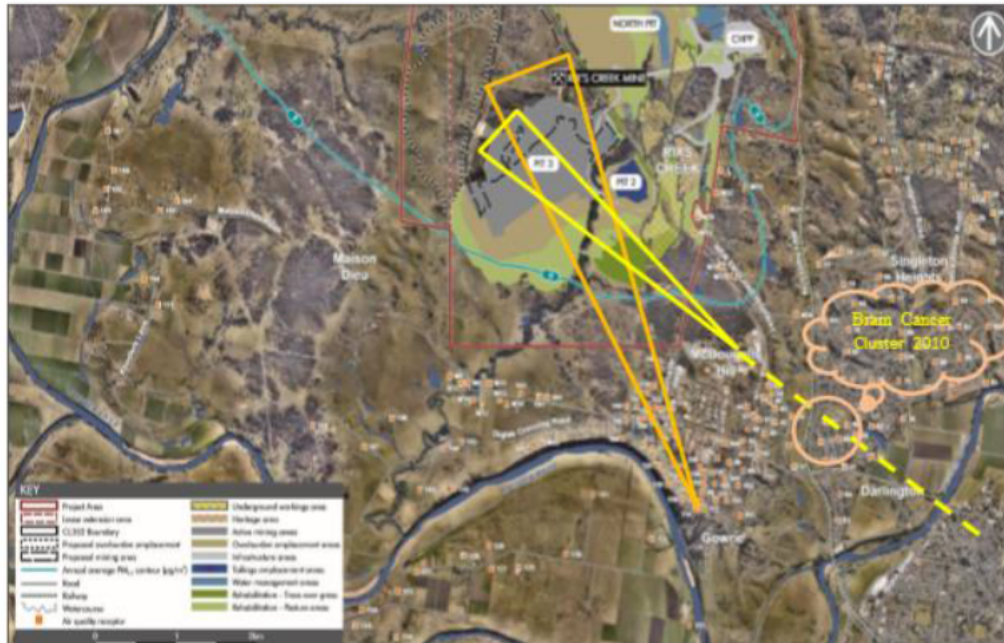


FIGURE 1 Illustration of Air Pollution Drifting Impact on Singleton Assessment Resident Groups

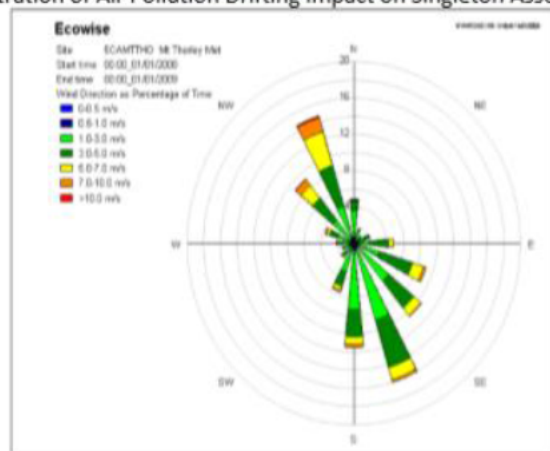


Figure 14: 2008 Annual Wind Rose

**Time Averaging** has also distorted the understanding of Air Drifting Flow Paths passing across Mines. In this case an Annual Average completely distorts and Hides the actual prevailing conditions, while the actual 15 Minute based Wind Direction Wind Rose would be much more scattered.

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**Note Meteorological Variability**

If anything, there are more of the same methods and evaluations of the type that have attracted Community criticism by CCC Members over the years particularly regarding Air Pollution and Blast Plume Drifting Modelling, especially the Variability of Valley Meteorological Conditions, Year on Year; and the **“Time Averaging of Air Pollution Data that destroys its Disease Risk Intelligence”**.

SSHEG is critical of the somewhat selective Meteorological Conditions that are been used for both the Air Quality and Noise Modelling.

*The Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (the EPA Approved Methods DEC2005) does however place the onus upon Rixs Creek Mine to make sure that “Data must be representative of the area in which emissions are Modelled”. Data used needs to represent the likely conditions across the 21 years of operation of Mining. This includes the Air Stream Flow Variability across Minutes.*

Figure 1 also Illustrate the significant issues faced by Rixs Creek Mine to limit the Airborne Pollution Emissions during the Winter Months (which can extend from July through to late September) when South Easterly Flowing Valley Air is Drifting directly across the Mine Workings and then over close-by Singleton Residents as indicated. Of particular note is the added impact of the Rail line and New England Highway with the somewhat concentrated presence of Diesel Exhausts Pollution, in an area where previous Community concerns of a Cancer Cluster were investigated.

For the Rixs Creek Continuation Project, a significant change is required to strategically locate *“Concurrent PM 10 & 2.5 Real Time Monitors ( 15 Minute based)”* in each of the Assessment Group in Figure 12.2 above to protect these Singleton Shire Residents.

Such Monitors would provide the basis to **Mitigate Air Pollution by Minimisation** for example by the judicious use of favourable Air Drifting Patterns throughout the Day to avoid vulnerable Resident Groups. Alternatively, Rixs Creek could use a *“Real Time PM Dispersion System”* based on Mine equipment 15 minute activities and local measured Meteorological movements across the Mine Site.

Some indication of the issues to be balanced by Rixs Creek is the impact of the cluster of Mines in Figure 2-2, Ravensworth Mt Owen operations, and close by the development of Aston South, EL5291, Singleton Town spread 1989 -2013, with TSP Dust Gauge Isopleth patterns providing a guide to Air Pollution drifting Paths.



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### Elimination of Mine Blasting Plumes into the Atmosphere

The Rixs Creek Mine Air Pollution entrainment in South Easterly Drifting Flows is further complicated when Mine Blasting is examined.

SSHEG reviews in 2014 ([Attachment 1](#)) entitled “SSHEG Document March 2014 Mining Pollution Mitigation Priority Action” identified Two Compliance Licence Conditions;

- (1) *Elimination of Blasting Plumes into the Atmosphere.*
- (2) *Residents in the Maison Dieu, Singleton Heights, Retreat, Hamilton Hill – Gouldsville \_ Long Point Rural Environs to be designated as “Occupational Exposure to Mining Status” concurrently as a Precinct with HVO , Ravensworth – Mt Owen, Integra Mining Operations cumulative “Air and Noise Pollution” requiring “Minimisation NOT Time Averaging to Hide Residents Pollution Exposure”.*

SSHEG concluded “The Elimination of Blast Plumes into the Atmosphere” would be the most significant step that the Mining Industry and Orica etc. could take towards reestablishing a better balance in the Hunter Valley. “*This can be achieved*”.

The Disease and Sickness Risk to Near Neighbours from Mine Blasting in the Hunter Valley, with Mines located amongst Rural Residents, depends entirely on Mining Blast Protocols and repeatable Meteorological Wind to dissipate Toxic Blast Plumes. The reality is that Wind Directions have been known to change direction unexpectedly just after Blasting. A repeat of the SE Qld “Gassing and Hospitalization of 21 Mine workers some Kms from the blast site remain a reality in the Hunter Valley.

We feel that for Open Cut Mining to continue Operating beside Residents in the absence of “Community Buffer Zones” in the Hunter Valley that it is essential that a way forward of Pollution Mitigation be added to existing Mitigation measures that not only reestablishes a better Balance but also is seen by the affected Residents and the Community as establishing that Balance.. However the risk of “Near Neighbour Gassings” demands action.

With the WHO 2013 Disease Risk knowledge that Air Pollution is now known to have “No Safe Threshold”, it is not surprising when Residents see HUGE Blast Dust and Toxic Plumes rising into the air and drifting towards their Homes and are alarmed that their and their Children’s Health may be affected. Should this Plume be bright orange, then it strikes panic and resentment in the vulnerable of the Community, and soon Community Complaints flood the Authorities and Health Warnings are issued. *Refer Photos.*

However the reverse is now also known to be true, where Blast Plume that are colourless and almost invisible are much more dangerous as no visible warning is present. Such an incident was recorded and briefly documented in 2013 as outlined in [Attachment 3](#).

Blast Management Plans have failed by focusing only on the Presence of Nitrogen Dioxide Orange Component in the Blast Plume claiming this is Best Practice Blasting, while the real Danger is from the colourless Gases, Vapours, Particulates and Aerosols as products of the Explosions and Flame emitted from the Blast Holes into the atmosphere resulting from inefficient and ineffective Stemming. “*Better Blast Hole Stemming is Needed*”

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These “Mine Blast Gassings” have occurred elsewhere across the Hunter Valley and should have been red flags to Government Authorities and Mining Companies that action was required. The recent “Gassing” of BOC workers outside the MTW Lease area Blast on 20 September 2013 highlights (*Attachment 3*) that notification of Blast time is not sufficient, but rather evacuation of residents within a prescribed range of say 5 to 15 kms in the Predicted Blast Plume Drifting Pathway is a more realistic Mine procedure when Blasting of suspect Strays or during unexpected Water damaged Shots have to occur for Mine personnel safety reasons.

Rixs Creek has not escaped Blast Plumes Drifting off Site and returning to ground nearby, as illustrated



9	18/7/2013	Resident	Rix's Creek Lane	Complaint regarding the sound of shooting at the mine. Kangaroo culling being undertaken. Soil and calm noise must have enhanced noise so Rix's personnel and shooters relocated away from the location of concern.		X			
10	19/7/2013	Resident	Maison Dieu	Complaint regarding operational noise all week and especially night of the 18/7/2013. Weather conditions enhance noise during this time of the year. Mine currently modifying West Pit to minimise		X			
11*	30/7/2013	Resident	Singleton Heights	Inquiry regarding blast in West Pit @ 14:12 pm as to whether Rix's Creek did blast and blast was within its limits. Blast results provided to resident. Resident did not wish to complain.		X*			
12	13/8/2015	Resident	Maison Dieu	Operation noise has been loud in Maison Dieu area especially during winter. Rix's Creek aware of noise issues and has amended West Pit to minimise noise impacts, however, changes won't be completed until end of 2015.		X			
13	14/8/2013	Resident	Maison Dieu	Resident woken at 5am by mine machine noise. Dragline worked during night (usually shut down) due to EX3600 excavator being broken down. Rix's Creek lowering haul road in West Pit to minimise noise impacts which is likely to be completed end of 2015.					
14	21/8/2013	EPA Complaints Line regarding three complaints to EPA regarding a blast	Singleton and Singleton Heights	Complaints regarding dust emitted from blast as well as strong odour. Rix's Creek did conduct a blast with dust cloud remaining stagnant in air for long duration due to low wind speed. Zero flame from blast. Rix's Creek provided report to EPA.					
15	21/8/2013	Planning Compliance Singleton	Putty Road	Complaint regarding large dust cloud being emitted from Rix's Creek mine. Rix's Creek did conduct a blast with dust cloud remaining stagnant in air for long duration due to low wind speed. Zero flame from blast. Rix's Creek provided report to DP&I.	X		X		
16*	18/9/2013	Planning Compliance	Passing site on NEH	Inquiry to Maison Dieu dragline dust in West Pit (surface level) whilst driving past site. Dragline was not				X*	



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Rixs Creek Blast Fume exposure in Maison Dieu Industrial Estate was the subject of SSHEG (*Attachment 2*) and Singleton Compliance Officers Investigation in 2014 which was inconclusive as some conjecture prevails as to the dissipation of the Blast and the Drifting Path or paths that occurred. SSHEG viewed Mobile Phone Video of a number of blasts with diary notes of respiratory and eye impact, but as proper Technical and detailed Reports were not produced or forthcoming, proper scrutiny and investigations has not occurred. However it is clear that Rixs Creek Mine Blasting does impact Near Neighbours and their Health Safety is only identified when a Complaint is Recorded.

It is therefore incumbent on the Government Authorities and Mines where they should be aware of the “potential Gassing Incidents” to immediately report these events to the Environmental Health and Health, Planning, EPA Ministers who are liable to administer the provisions “under the Act”.

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Summarising, the Communities concern is the following extract from “*The Maitland Mercury* by Matthew Kelly Nov 4 2013” shortly after the WHO Air Pollution Announcements and Newcastle Air Quality Forum in September 2013. (Notations highlighted in Red relate directly to Rixs Creek Mine SSHEG Health Concerns).

“NSW Health investigated a **suspected brain cancer cluster in the Singleton area in 2010** following long-held community concerns about the health impacts of coal dust.

The investigation, which focused on five cases over a 35-year period, was unable to find a direct link and concluded the cases were a statistical anomaly. It did, however, **suggest the cases and their potential causes were worthy of further investigation.**

Professor Wayne Smith from NSW Health’s environmental health branch said the agency’s statement was accepted knowledge in the field of air pollution research.

“The ... **statement provides additional justification for the actions that the NSW government is taking to reduce the population’s exposure to air pollution**, including the actions being taken in the Upper Hunter,” he said.

NSW Health data, released at September’s air quality forum in Newcastle, estimated **fine particle pollution** resulted in 25 deaths in the greater Newcastle area each year. **Two deaths a year were attributed to exposure to fine particle pollution in Muswellbrook and Singleton.** Fine particle pollution causes 223 deaths in Sydney each year.

**A NSW Minerals Council spokesman said the industry was committed to improving air quality.** “Mining contributes to regional particulate matter, but we’re one of many contributors. Other sources include cars and other transport, sea spray, bushfires and wood smoke from homes,” he said.”

Two SSHEG Documents provide the background of our engagement with Government Authorities, Hunter Community, Mining and Power Stations over the last ten years.

[Attachment 4](#) is a Presentation of Community Health Concerns 2013

[Attachment 5](#) - SSHEG Review Summary May 2015

- incl Mining Dialogue Summary 2011 – 2014

- Appendix M7 SSHEG Review 2015 Presentation Pgs. 38–40.

**SSHEG contend that the Environment in the Hunter Valley, especially with Poor Air Quality from Pollution Emissions of Gases, Particulates, Vapours, Fumes, Aerosols, Pollens, etc., requires better targeted Short Term Monitoring of the Composition, Toxicity, Exposure and related Health effects. By 2014 sees the challenges of the new World Health Organisation “Stochastic” Air Pollution Paradine, requiring better Mitigation steps to reduce these Health Risks for Residents.**

But it is especially all children, Pre & Post Natal and Children under 8 years of age that are now being confirmed as one Population Group vulnerable to Air Pollution; confirming the Singleton Community Health Survey Reports. These SSHEG Health Surveys in 2008-9 and Community Reports by 2010 already identified that the Air Pollution of the Cluster of Mines in the Hunter Valley are often Hour by Hour impacting the Health of all Residents Groupings in Bulga-Broke Micro Valley area, Glenden Brook Valley, Mt Royal, Muswellbrook and Singleton Shire, for both Long and Short Term Exposures.

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Singleton Shire Healthy Environment Group

- Attachment 1* SSHEG Document March 2014
  - Mining Pollution Mitigation Priority Action
  - Blasting Pages 1 -10.
- Attachment 2* SSHEG “Elimination of Mine Blasting into the Air” April 2014
- Attachment 3* Report on MTW Blast 20<sup>th</sup> Sept 2013 BOC Workers “Gassings”
- Attachment 4* SSHEG Presentation of Community Health Concerns 2013
- Attachment 5* SSHEG Review Summary May 2015
  - incl Mining Dialogue Summary 2011 – 2014
  - Appendix M7 SSHEG Review 2015 Presentation Pgs. 38–40.